

*U.S. Department of Education*

*Student Financial Assistance (SFA)*



# **SFA University**

**Deliverable 29.1.2**

**Straw-model Operating Guidelines**

***December 11, 2000***





Executive Summary	3
Knowledge Management and SFA	4
Key Processes for Knowledge Management	5
Operating Guidelines for SFA's Knowledge Management	6
Knowledge Management Principles	6
Knowledge Management Strategies	6
Suggested SFA Strategy	7
SFA Knowledge Management Proposed Future State	8
Organizational Roles and Relationships within SFAU	9
Proposed Future State Roles and Responsibilities	11
Key Business Requirements and Functionalities	13
Proposed Knowledge Databases/Repositories	15
Proposed Development Plan	16
Organizational Change Drivers	18
Building Commitment To Change	19
Appendices	24
Appendix A – Best-in business Knowledge Management Case study Examples	25
Example A, British Petroleum	25
Example B, Microsoft	25
Example C, Monsanto	26
Example D, Andersen Consulting	28
Appendix B – Barriers to Knowledge Sharing and the Evolution of Communities of Practice	29
Knowledge sharing and building “Communities of Practice”	29
Appendix C - Strategies	31
Low Cost consistency Strategies	31
Organizational Flexibility Strategies	31
Cross Functional Strategies	32
Teaming Strategies	32
Appendix D – Technological Platforms and Helpful Background Documentation	33



## ***Executive Summary***

This document is designed to describe operating guidelines for organizational Knowledge Management, based on best-in-business practices. Specifically, the document focuses on:

- Key processes for Knowledge Management
- Operating guidelines for SFA's Knowledge Management
- Key business requirements and functionalities
- Proposed knowledge databases or repositories
- Proposed development plan

This document displays the Knowledge Management development process by providing a definition of Knowledge Management key processes for best practices, operating guidelines with current and proposed roles and responsibilities, proposed knowledge warehousing, and a development plan.

The creation of operating guidelines is linked to the SFA modernization effort. The information presented in this document can be used by SFA subject matter experts in conjunction with planned working sessions to ensure the Knowledge Management development process accurately reflects SFA's modernization and business needs.

This document is the synthesis of multiple source research and is intended to be used as an element of SFA's modernization process. The information and processes were collected from several sources including best-in-business research, Operating Partner subject matter experts, and the SFA Modernization Blueprint.



## Knowledge Management and SFA

One of the major drivers behind the creation of this document is the need to identify the elements for the continuing development of SFAU based on best-in-business practices. The focus was specifically initially on SFAU and in keeping with this the guidelines have addressed the SFAU elements involved in design and development of a knowledge management system. The figure 1 below illustrates the six different groups that should actively participate in the development of knowledge management within the corporate university known as SFAU. These six groups consist of; Knowledge Management, Internal Services, Best Practices, Registration, CRM team, and Learning Suppliers.

However, all best in business practices examined, including Microsoft, 3M, Monsanto, Hewlett-Packard, Andersen Consulting, British Petroleum and others, link overall success of Knowledge Management directly to the development of an *enterprise wide* system and that is the focus presented. For SFAU and SFA, a successful knowledge management system must include proactive involvement from all elements as listed in the second graphic below. This is especially true since the majority of organizational knowledge currently resides in the channels and not in SFAU itself. In order to assure success, the organization as a whole was kept in mind when designing this document.

Figure 1

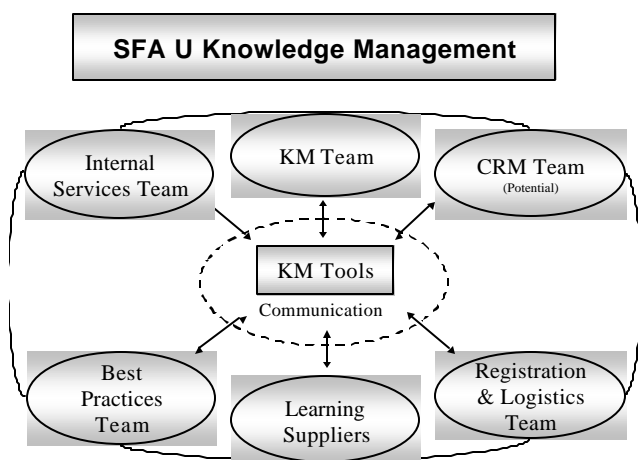
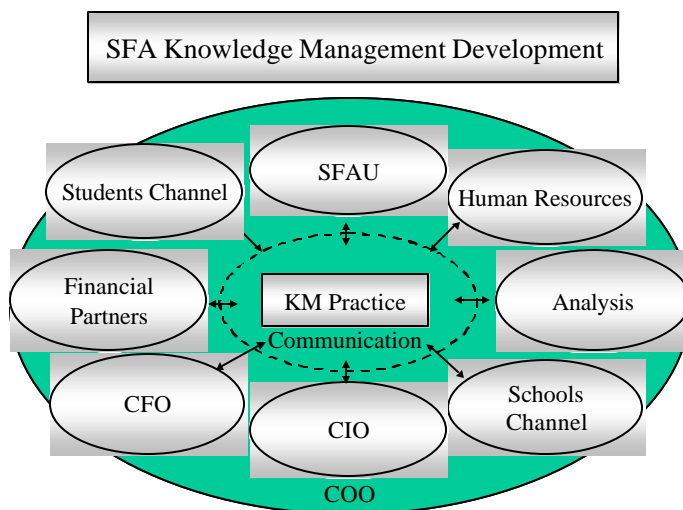


Figure 2





The foundation of SFA's, or any other, Knowledge Management system is the migration of valueless data to useful knowledge. The goal of Knowledge Management is to efficiently allow this migration to occur within an organization. In addition, Knowledge Management can create measurable **increases in efficiency** when judged against organizational goals such as those listed below.

– **Improving quality goods and services**

- Delivering more services, while controlling costs
- Detecting new development possibilities/requests

– **Customer/public satisfaction**

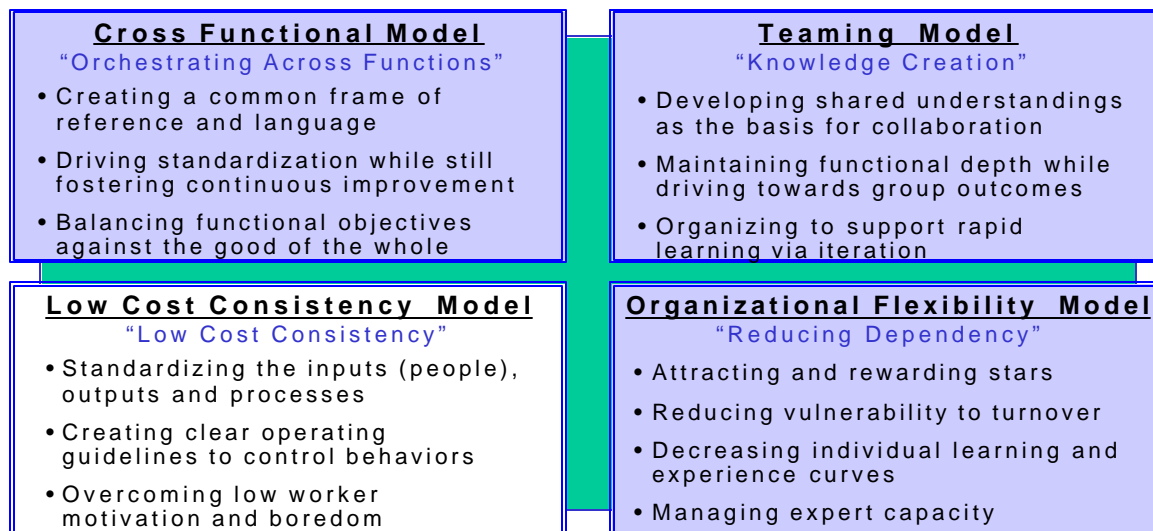
Which requires:

- Knowledge of the context (society, legal frame, etc.)
- Knowledge of the customer needs
- Sharing of Knowledge Capital
- **Employee satisfaction**
- Establishing and maintaining customer trust

## Key Processes for Knowledge Management

The connection between organizational goals and Knowledge Management requires an understanding of the business models involved in the process. As a first step, one must categorize work being done within the existing organization to determine a framework. Four categories of business core process / work models are identified, each presenting a specific set of Knowledge Management challenges. These four processes are best identified through various challenges the models present within an organization. After analyzing the different models, SFA maps closely to a Low Cost Consistency model as shows below.

### Business Models - As Seen Through Knowledge Management Challenges





The next section highlights important principles and developmental elements needed for a successful Knowledge Management system.

## ***Operating Guidelines for SFA's Knowledge Management***

The foundation of knowledge management development requires an understanding of the principles that allow the creation of strategies for organizational change.

### **Knowledge Management Principles**

- Knowledge originates and resides in people's minds
- Knowledge sharing requires trust
- Technology enables new knowledge behaviors
- Knowledge sharing must be encouraged and rewarded
- Management support and resources are essential
- Knowledge initiatives should begin with a pilot program
- Quantitative and qualitative measurements are needed to evaluate the initiative
- Knowledge is creative and should be encouraged to develop in unexpected ways

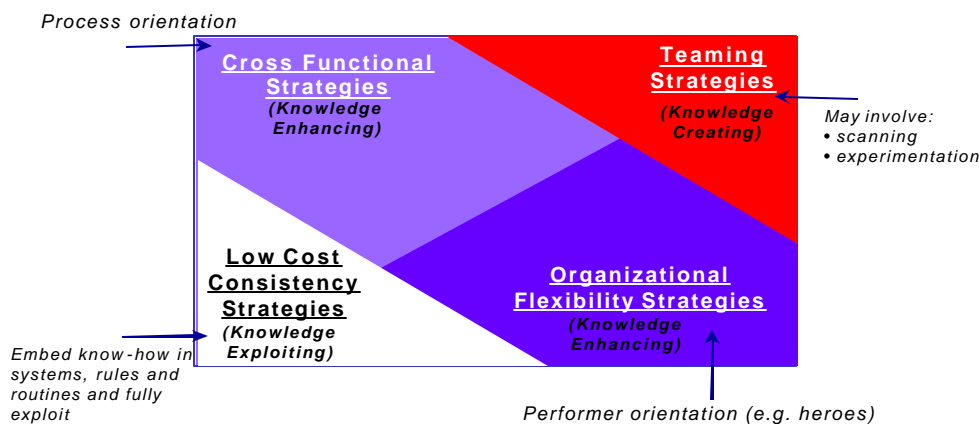
### **Knowledge Management Strategies**

Once principles are established, the next logical step is the identification of strategy required to create a Knowledge Management system.

These strategies offer characteristics that can be used to develop a framework for SFA.\*

### **Knowledge Management Strategies**

This leads us to distinguish between four generic KM strategies, as well as important variations within each strategy.

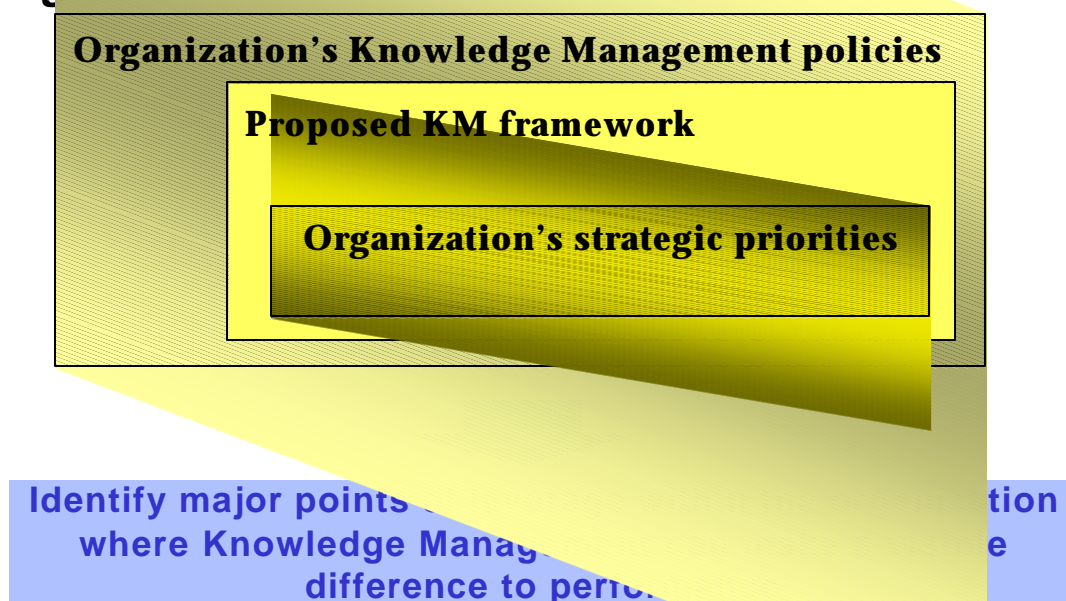


**\*See Appendix D for description of each strategy**



With the background of strategies available, identification of the appropriate strategy for SFA can be discussed.

To identify a strategy for each organization



Focusing on major points within the organization has greater benefits than tackling simultaneously all of the organization's processes. Major points are:

- Reinforce performance in specific areas critical to the organization
- Apply KM systems to specific competencies to improve the generation of added value
- The return of these initiatives can be measured through specific business process performance metrics

After considering SFA's needs and organizational characteristics, a Low Cost Consistency strategy seems to be the easiest fit for the current organization. However, this strategy is not exclusive, and is based on the current organizational culture. A strategy can be customized to reflect SFA future goals. A shift towards a knowledge sharing culture and associated Teaming Strategy would be in keeping with the development of team centered coaching and communities of practice. (See Appendix D)

## **Suggested SFA Strategy**

### **Low Cost Consistency Strategy**

SFA's Organization Structure is based on process knowledge and can be closely aligned to this strategy, as the key elements below exemplify:

- A strong supervision system is in place
- HR Practices are currently being developed apart from Department of Education which can include; Training requirements for promotions, mandatory curricula, and motivation policies (e.g. communication of increased customer satisfaction)
- HR can include a reward system (including access to defined process guides, use of performance support tools, etc.)
- Systems and tools can be developed to include repositories for processes & sample outcomes



- Current intranet and e-mail structure allows for Individual access to communication tools
- Direct Performance Support Tools (strong guidelines)
- Work processes can be defined and optimized and then incorporated into a Knowledge Management system (via hierarchy)

Once the strategy is identified, one can examine the desired future state and requirements needed to effectively create a supporting Knowledge management system. The following section highlights the issues faced by SFA and the Knowledge Management solution proposed.

## **SFA Knowledge Management Proposed Future State**

### **Issues**

- Ongoing challenge to initiate and maintain cutting edge knowledge transfer in a service organization who's core assets are its employees' skill sets
- Using Information Technology to share those parts of the organization's knowledge capital which are fragmented or siloed

### **Goals**

- To promote the flow of knowledge so the best and most adaptable innovations can be used elsewhere in the organization
- To adapt the agility of Information Technology to quicken the pace of knowledge transfer
- To share employee knowledge and skills accumulated over the course of time throughout the organization

### **Solution**

- Design and build a network of people, not simply a storehouse of data, information, or knowledge
- Develop a "Coaching" program to show participants how to use the technology and help them understand how it could further their work
  - Personal interaction emphasized by a "coach" working with "players," not a trainer presenting information to passive recipients
- Demonstrate success by volume of use, participant enthusiasm, and measurable savings in time and money
- Position the Knowledge Management system as the main vehicle to gather and make accessible new organizational learning through
  - Discussion forums
  - Libraries
  - Formal methods creation which can then be captured for course development and other business initiatives
- Initiate a combination of training and Knowledge Management to allow individual and organizational learning to reinforce each other and realize maximum leverage
- Integrate and coordinate support at each stage of the learn, perform, and contribute cycle





## **Organizational Roles and Relationships within SFAU**

One of the most common barriers to knowledge sharing is found in the divisions that naturally occur within an organization. The model, found in Appendix B, demonstrate SFA's operative islands and their effect on knowledge sharing. In order to insure the growth of knowledge sharing, SFAU has already started creating teams associated with Knowledge Management. Currently three of these groups, Best Practices, Internal Services, and Knowledge Management exist in SFA U. The roles and resources allocated reflect the relative newness of SFA as a corporate university and still have growth potential.

### **Current SFA University KM Responsibilities**

<b>Best Practices Team</b> <i>Currently one person in role</i> <ul style="list-style-type: none"><li>• Subject Matter Expert on learning trends, theory and technology</li><li>• Web Content Manager</li><li>• Communicate training research to all interested parties</li><li>• Participate in curriculum development</li><li>• Identify training best practices</li></ul>	<b>Internal Services Team</b> <i>Currently one person in role</i> <ul style="list-style-type: none"><li>• Identify training opportunities for SFA channels and groups</li><li>• Research KM Knowledge content</li><li>• Web administration</li><li>• Develop knowledge newsletters for employee development</li></ul>	<b>Knowledge Management Team</b> <ul style="list-style-type: none"><li>• Facilitate Knowledge Management Development</li><li>• Identify KM training</li><li>• Build KM web pages</li><li>• Maintain KM web site</li><li>• Coordinate on-line training registration</li><li>• Compile course listings and vendor offerings</li><li>• Collect and compile training evaluations</li></ul>
--	--	--

However, In keeping with best-in business practices, the following proposed organizational roles and responsibilities have been created with SFA (as shown in figure 2 on page 2) in mind.



## Proposed Best Practices Team Roles and Responsibilities \*

### Best Practices Sponsors

- Executive who provides overall guidance and support for the Best Practices team
- Supports establishment of guidelines and strategy according to Knowledge Management Best Practices

### Best Practices Managers

- Coordinates the activities of the team members
- Best utilizes the limited time of each team member
- Acts as a liaison for the executive team across regions
- Shares knowledge of approach and method
- Creates team schedule

### Best Practices Regional Administrators

- One member from each region performs independent research
- Analyzes recommendations from the SFA community

*\* Based on Best-in-business practices*

## Proposed Knowledge Management Team Roles and Responsibilities \*

### Knowledge Sponsors

- Executives provide overall guidance and support
- Encourage leaders throughout SFA to facilitate learning

### Knowledge Managers

- Responsible for data maintenance and quality
- Responsible for user relationships and participation
- Maintain a close relationship with all business units

### Knowledge Champions

- Reside as Subject Matter Experts
- Ensure data accuracy
- Reinforce learning opportunities that support SFA's critical business issues
- Ensure information submitted to the knowledge base is practical, viable, and correct

### Knowledge Administrators

- Maintain database integrity and design

*\* Based on Best-in-business practices*



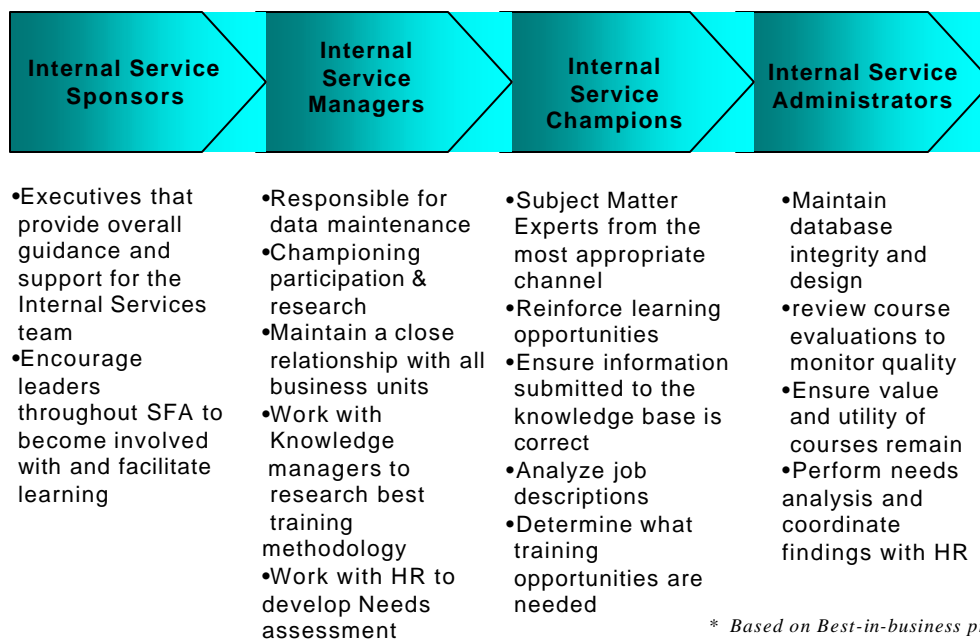
## Proposed Future State Roles and Responsibilities

### Proposed Customer Relationship Management (CRM) Team Roles and Responsibilities \*



\* Based on Best-in-business practices

### Proposed Internal Services Team Roles and Responsibilities \*

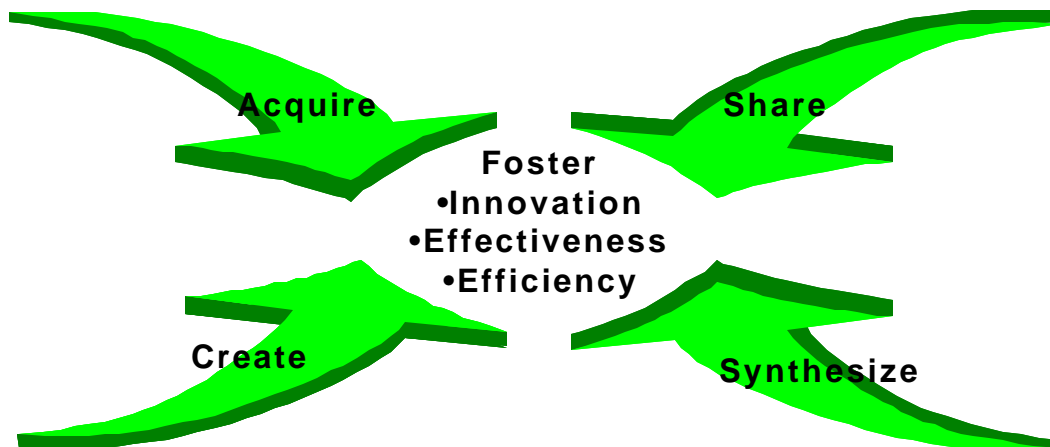


\* Based on Best-in-business practices



Underlying each of these team initiatives and the formation of Communities of Practice is a need for a collaborative culture that dynamically fosters knowledge sharing. A team oriented and collaborative culture must underpin the Knowledge Management initiative. Each of the processes below provides an opportunity for the creation of organizational knowledge based on experience.

## **Information.....Insights.....Experience**



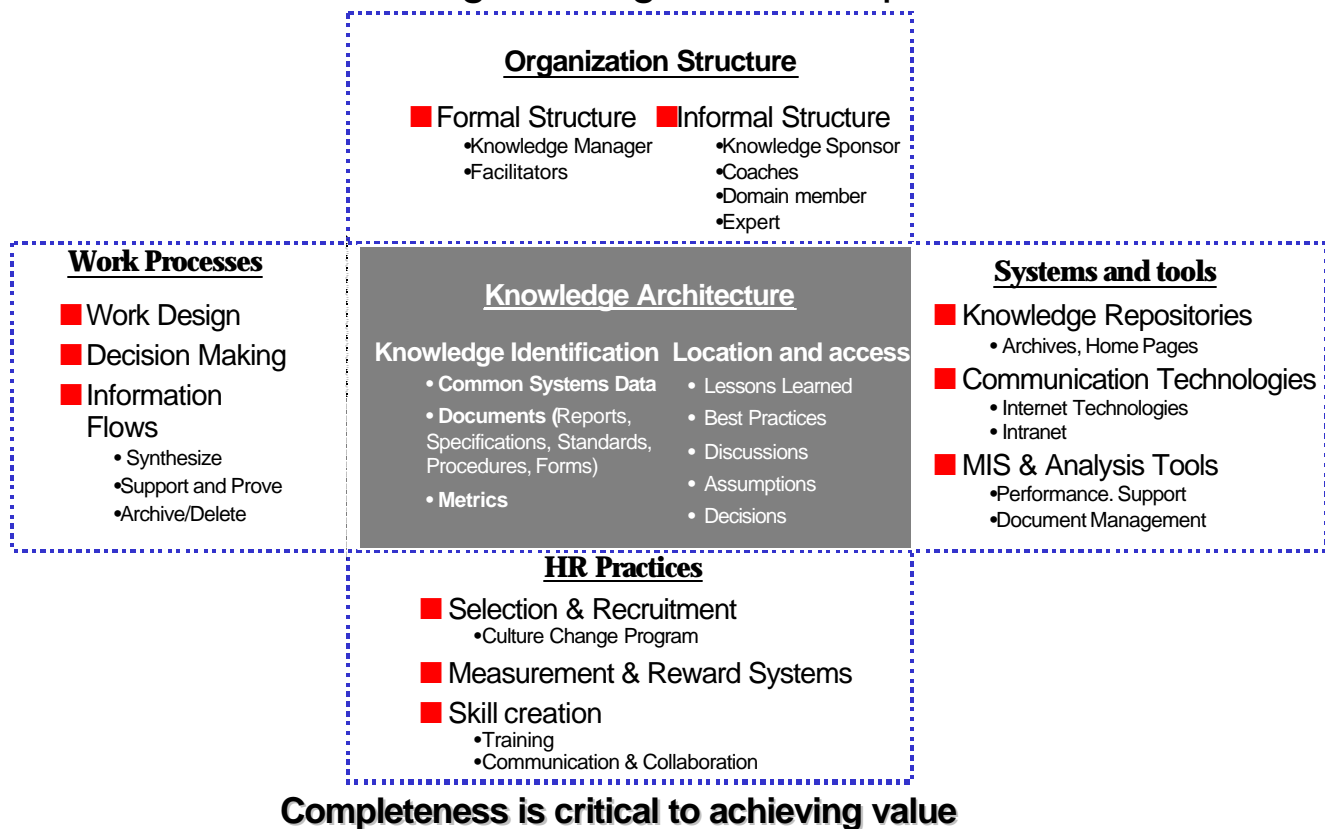
The development of such a culture can occur organically, but often other drivers are needed to nurture change. The next section highlights important developmental elements and organizational drivers needed for successful Knowledge Management advance.



# **Key Business Requirements and Functionalities**

The following diagram highlight the required components of a successful Knowledge Management system with illustrative example common to Knowledge Management.

## **Knowledge Management Components**



In addition to the basic Knowledge Management components that exist in all systems, SFA specific business requirements drive the building of Knowledge Management tools. The following have been identified as functionality that is desired by SFA:

- Electronic storage
- Electronic class cataloguing
- Enterprise wide data collection and housing
- Data mining
- Electronic registration
- Enterprise wide usage tracking of Knowledge management systems
- Feedback capacities
- Electronic calendaring
- Web base distance learning



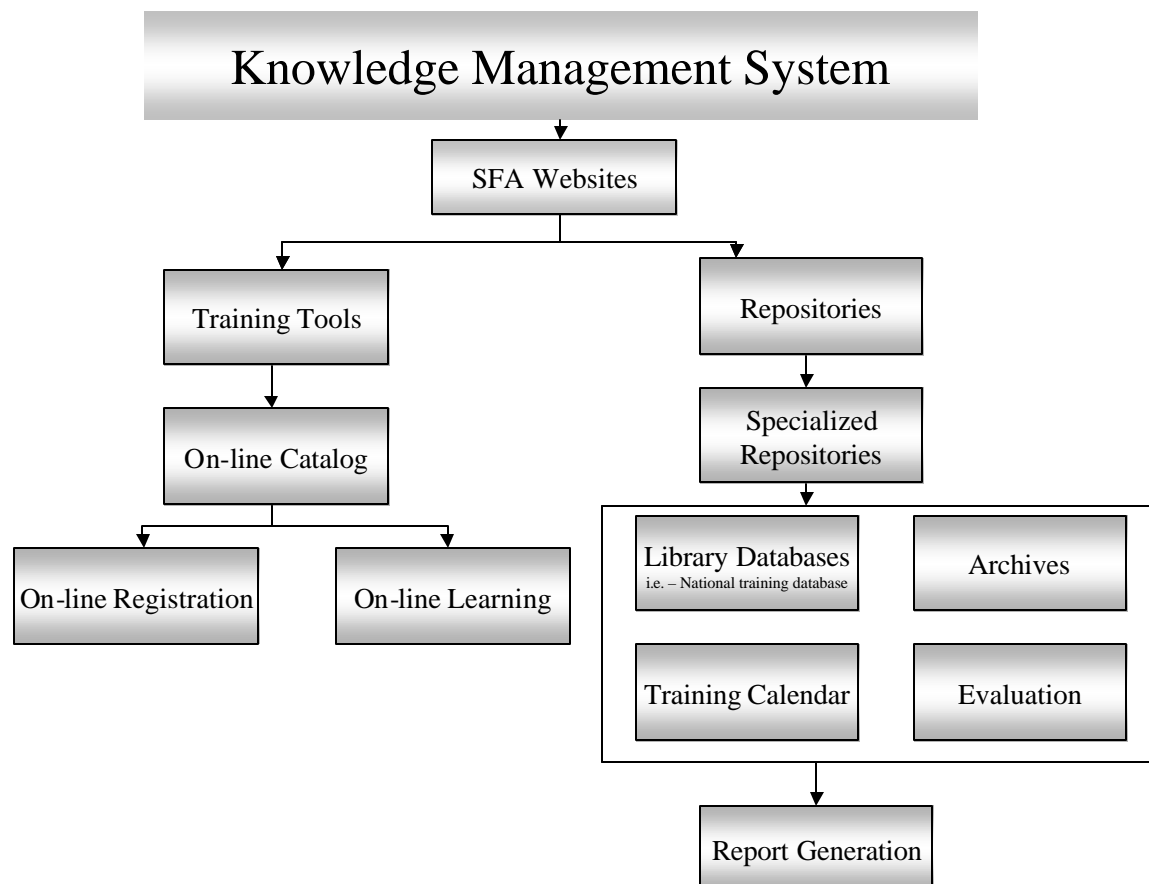
The tools that are created using the functionality listed above should also be focused on continuous learning. With this goal in mind, further specific requirements are included to help guide Knowledge Management system development:

- Invest in skilled training staff.
  - Ensure trainers have strong functional and technical knowledge, as well as solid communication skills.
  - Use a cross-unit training staff.
  - One Multinational Financial Services Firm offers formal external and internal classroom technical and non-technical training for all its employees, and has a strategy for cross-training IS team members to increase division effectiveness and reduce key person dependency. Customers most often requested that IS professionals receive training in project management, communication skills and relationship building skills. The firm allocates eight training days per year per employee.
- Build tools that give users 80% of information needed on a daily basis and tools to customize other 20%.
  - Provide users with a knowledge database “Yellow Pages”, resource lists, targeted libraries with links, and directories. Together, these pre-packaged tools provide 80-90% of information users need, while the other 10% can be customized through the knowledge database Front Page. The ‘Front Page’ is a user-friendly navigation tool for isolating particularly interesting knowledge bases, clip and store pieces of knowledge that are important, and construct one's individual map to the database. Further customization can be achieved by contacting support centers in each business area.
- Establish a single point of interaction. This will avoid confusion as to where and how information needed is found.
  - All knowledge databases should be placed together on the same platform and cross-referenced so that each document has direct links to related information in other databases.
- Create an intuitive user interface to speed adoption and reduce training needs.
  - A Major Retail Bank visually aligns user tools targeted at the bank's financial advisors with the business processes. Clicking on the appropriate step in the process will bring up related user resource kits.
  - Customize tools to provide the right level of functionality for each user group.
  - One large life insurance company determined that only account specialists with specific needs would be given the tools to do ad hoc querying. Everyone else would be provided with basic reports. The idea isn't to give everyone a shovel to sift through the mountains of customer data being assembled, but to provide relevant information much more efficiently and cost effectively.
- Automate searching to eliminate manual work and save time for the user.
  - Ensure tools function without user intervention and deliver information the user has expressed an interest in.
  - Utilize agent processes where appropriate. These agents allow systems to preempt the user's requests for action.



## Proposed Knowledge Databases/Repositories

The following flow chart lists the structure for SFA's proposed Knowledge Management system, based on the requirements and functionality as already established.



However the system as listed above can exist on a variety of technical platforms which are available today. A matrix (See Appendix D) has been created to highlight major options for these platforms.



## ***Proposed Development Plan***

Once a desired Knowledge Management design is identified, the steps involved in actual execution can be examined. The sequencing of activities known as the design phase marks the primary stage of any program development. The purposeful pacing and sequencing of a set of change activities to meet business goals mark this phase. Planning includes detailed steps to be taken, prioritization of those steps based on benefit and assigning responsibility. The next step after analysis and discussion of the straw model through working sessions is a functional workplan (action plan). Finally, after a work plan is clearly developed, the plan put into action, with matrixes to identify effectiveness and modify accordingly.

A set of guiding principles has been identified based on best-in-business practices for SFA's Knowledge Management systems design. The following are these principles.

### **Design Phase Principles**

- Manage the initiative as a business project, not as an IT project, to ensure buy-in organization-wide.
- Ensure information initiatives, development of support systems and process reengineering are planned and implemented as one consistent, continuous closed-loop system.
- Be organized and consistent in implementing data warehouse initiatives throughout the organization.
  - Avoid isolated data warehouse efforts.
  - Intellectual Asset management includes goals which are not static in which individuals must recognize that they manage their own career, identifying opportunities for career growth.
- Target pilots at areas in which there is already a culture of information and data use. Starting within existing knowledge sharing areas will model success and reduce potential initial cultural obstacles.

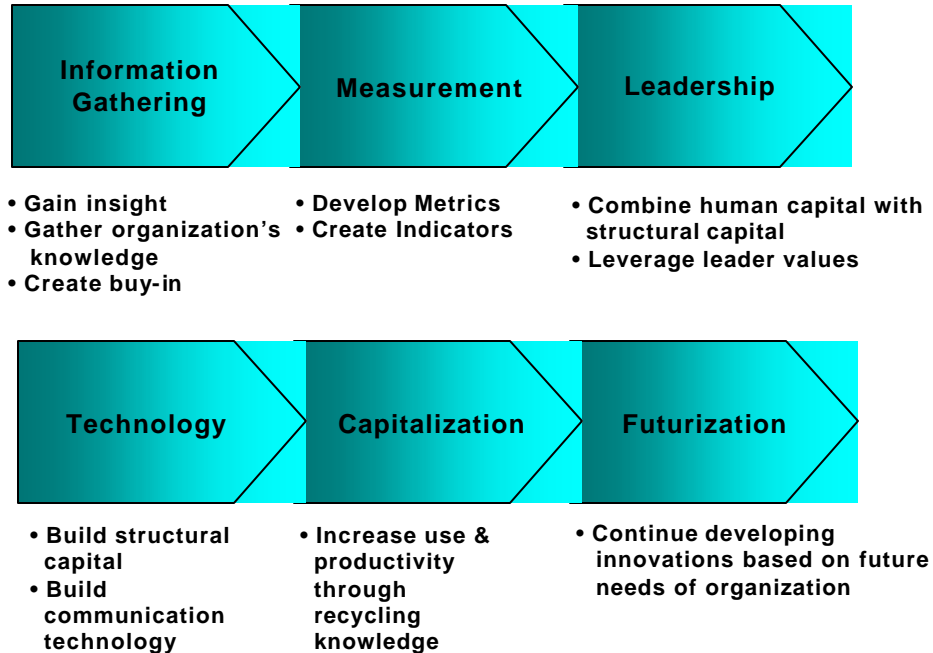




Keeping these principles in mind, below is a graphic representation of the necessary steps involved in SFA's Knowledge Management implementation.

## **Proposed Phases for Knowledge Management System Development**

### **Six Phase Process**



The migration of an organizational culture towards knowledge sharing does not occur without a proactive drive to change. There are three different kinds of change drivers. During the initial phase of Knowledge Management system design and development, the organization must identify which of these drivers are to be used to facilitate the change. It is important to note that these drivers are not exclusive, a combination of more than one can and often is used.



## Organizational Change

**There are three models for an organization's capacity to change.**

### **Leadership-driven change**

- Articulate a business case for solving a crisis
- Build the executive leadership team
- Communicate frequently and by varied means to people at all levels
- Provide extreme focus and tenacity in driving the change
- Survey and monitor environment to anticipate future contingencies

### **Process-driven change**

- Executive leader shares responsibility with other individuals
- Develop competencies and capabilities
- Structure
- Decision-making at all levels
- Communication is cascaded

### **Organic-driven change**

- Learning and knowledge sharing
- High levels of trust between management and employees
- Performance measures

In addition to the drivers of change, which must exist within the organization, three essential steps must occur in order to effectively facilitate change in SFA effectively.



## Three Steps to Effective Change

### **Sponsorship**

•Change begins with the sponsor, goal and plan to manage and monitor progress.  
–Management should be able to define and maintain key concepts that ensure successful change. Keeping in mind that the technical side of change is only one aspect.

#### **Step One**

### **Communication**

Effective change requires effective Communication. Communication plans will vary depending on the objectives of the initiative, the population involved, and the environment.  
–Use of technology as a communication vehicle enables the effectiveness of communication to be monitored.  
–Effective communication must be fostered by coordinating consistent communications about policies, processes and related behavior.

#### **Step Two**

### **Assessing Organizational Culture**

•The organization must recognize that people are most important to successful change.  
–Assessing culture will reveal information to create a vehicle for change.

#### **Step Three**

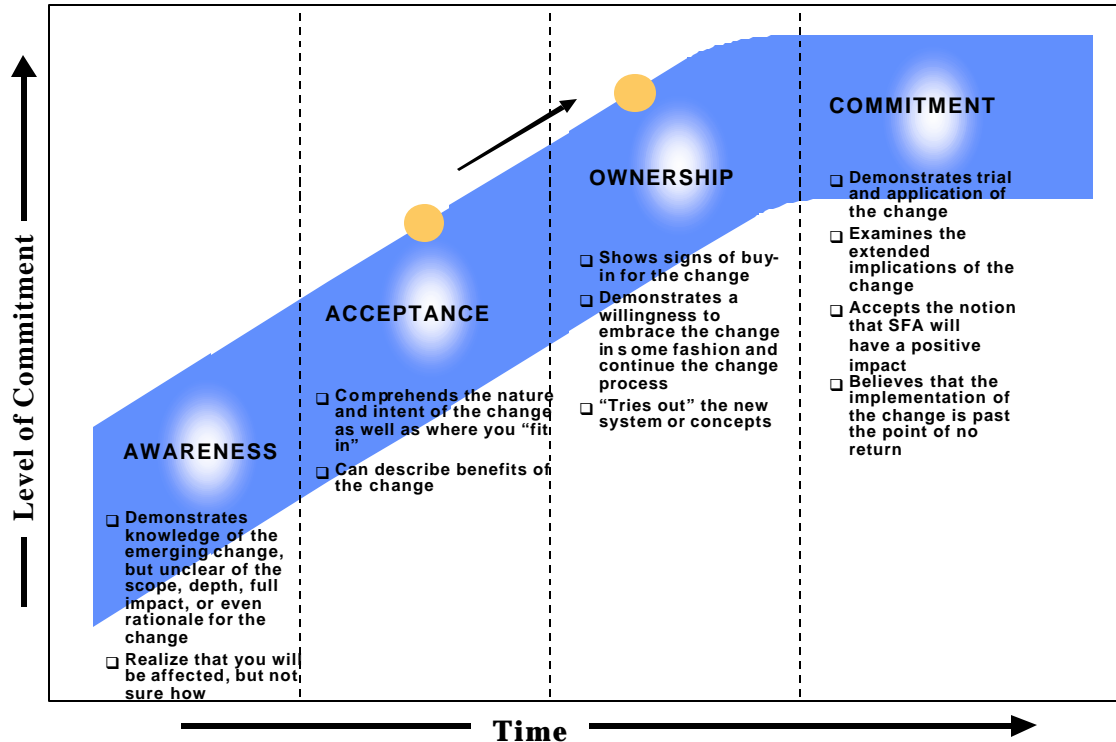
## **Building Commitment To Change**

Commitment is critical to ensuring the success of a change effort. A survey of 531 companies that implemented large scale change indicated 79% of the companies did not achieve the objectives of their change efforts (HR Magazine, Dec. 1993). Two factors were highlighted in the survey results as impediments to change; they were:

- employee resistance
- lack of communication planning



The relationship between *success* of the change and employee *acceptance* of the change is illustrated in the change acceptance curve presented below. The user acceptance curve consists of four phases.



**Awareness** - As illustrated above, stages of acceptance can range from *awareness*, at the low end of the continuum to *commitment*, at the high end. In the Awareness stage, employees:

- have simply been told about the coming change
- do not necessarily know how the change will affect them or their co-workers
- do not know how their jobs will change, if they will be retrained, or even if they might lose their jobs
- will speculate about how the change will affect them and how they will *react* to the change

**Acceptance** - The next step up from awareness is *acceptance*, employees:

- have been made aware of the change and have some idea how it will affect them initially
- realize that the change *will* happen and so they must accept it, regardless of how they may feel about it
- may choose to react to the change by resisting it because they feel uncertain about their futures
- may resist the change that they perceive as the source of their discomfort



**Ownership** - The third stage is referred to as *ownership*. Ownership is achieved when employees:

- not only know about the change, when it will happen, and how it will affect them, but also that they are involved in the change effort
- become involved in decisions related to the change and its implementation and *adopt a stake in its success*
- react much more positively if they have some input into how the change will happen and what effect it will have on them than if a change is simply thrust upon them
- should help to decide how the change should be implemented, and their reaction is more likely to be that they are willing to adjust to the new environment

**Commitment** - The final stage in acceptance is represented here as *commitment*. At this stage, employees:

- know what about their job is changing, when it will happen, how it will affect them, and they are not only willing to accept the change but also take action to make it successful
- can make a connection between the success of the change effort and their own personal success
- move from reacting to the change and its implications to *taking a proactive role to ensure its success*
- will work to facilitate a smooth, timely transition to the new environment
- understand that the change will have a positive impact on the company and, in turn, on them; therefore, it is in their best interest to work for its success

Not all employees will experience the same amount of change. They will all need to learn how to work within the new system, but many will also have new and/or different responsibilities.

### ***Journey Management***

Journey management is the process of managing your change effort. The greatest capacity for successful change is in the ability to utilize varied factors in your change efforts.

Some key factors are:

- Build the executive leadership team
- Communicate frequently and by varied means to people at all levels
- Provide extreme focus and tenacity in driving the change
- Survey and monitor environment to anticipate future contingencies
- Executive leader shares responsibility with other individuals
- Develop competencies and capabilities
- Structure
- Decision-making at all levels
- Communication is cascaded
- Learning and knowledge sharing
- High levels of trust between management and employees
- Performance measures



***“Building change capacity means committing resources.”***  
***“Managing change is an art not a science.”***

These concepts are important statements to remember as the change process is visualized.

Managing a journey requires a detailed understanding of it's **context**. A clear context is one that establishes the purpose of the change by defining the outcome or result of the change in terms that have meaning to personnel at all levels of the organization.

The **content** of a change journey is defined by identifying the elements of the organization to be changed. These elements are the process, the people and the technology.

Together the context and content of change should shape the course of action which is the specific way in which the client change journey should be undertaken and realized

### **A course of action defines the process of change.**

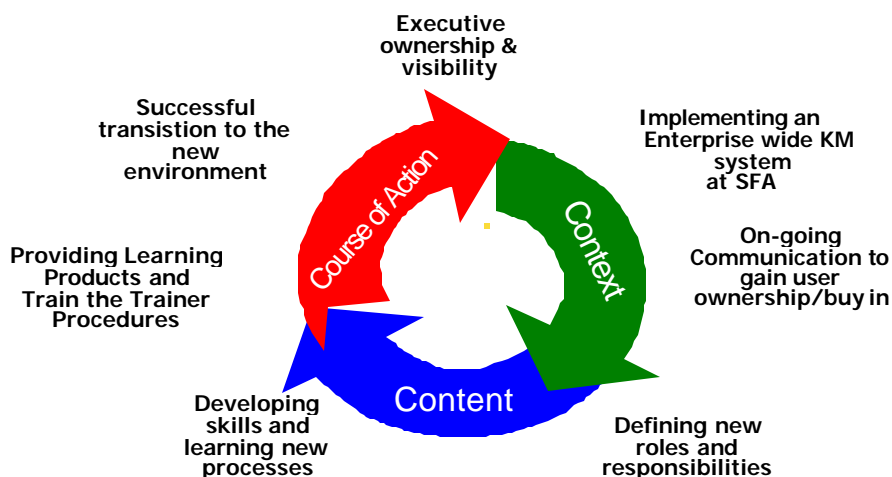
**Context--** What needs to change

**Content—**The Environment

**Course of Action—**How we change

The operating guidelines will provide the vehicles to disseminate information that will address these three areas. The context will cover SFA's structure and the principles and strategies for developing a enterprise wide knowledge management system. The content will cover best in business practices . The course of action will cover the two way on-going communication at all levels and the knowledge capital development through databases, repositories and training.

### **Student Financial Assistance University- CHANGE JOURNEY**





Organizational change is the active process of transitioning the human and organizational aspects of a group toward a desired state. Successful change efforts include:

- focus on a few vital issues
- link changes to the infrastructure
- clearly communicate what will be done
- find needed support
- involve target groups in the design process
- define what employees need to do differently
- indicate employee benefits
- design plan of action
- combat natural resistance



## ***Appendices***

**Appendix A – Best-in business Knowledge Management Case Study Examples**

**Appendix B – Barriers to Knowledge Sharing and the Evolution of Communities of Practice**

**Appendix C – Knowledge Management Strategies**

**Appendix D – Knowledge Management Technology Options**





## **Appendix A – Best-in business Knowledge Management Case study Examples**

The four best-in business examples that follow clearly outline; issues, goals and Knowledge Management solutions that have been successfully implemented. These four examples were chosen because they mirror some of SFA's own issues and goals.

### **Example A, British Petroleum**

#### **Issue**

- Organization has strong Information Technology structure but still has problems utilizing the cumulative knowledge of the organization which remains siloed and fragmented.

#### **Goals**

- To combine the agility of a small company with the resources of a large one
- To promote the flow of knowledge so that the best and most adaptable local innovations can be used elsewhere in the larger company

#### **Solution – Virtual Teamwork Program**

- Designed to build a network of people, not a storehouse of data, information, or knowledge
- Hardware and software chosen to create Virtual Teamwork stations focused on duplicating as much as possible the nuances, variety, and human dimension of face-to-face contact
  - Non-IT staff utilized in product selection to avoid familiar IT patterns
  - Non-IT control to emphasize the idea of technology as a tool, not an end in itself
- “Coaching” program developed to show participants how to use the technology and help them understand how it could further their work
  - Personal interaction emphasized by a “coach” working with “players,” not a trainer presenting information to passive recipients
- Success was demonstrated by volume of use, participant enthusiasm, and measurable savings in time and money

#### **Conclusions**

- Technology and coaching lead to a more collaborative culture of decision making across the organization
- A repository of solutions was necessary for frequently encountered problems

### **Example B, Microsoft**

#### **Issue**

- Disconnect between employee's professional skill growth and training offered as well as best fit with jobs

#### **Goals**

- Improve connection between employee skill needs and training
- Improve the matching of employees to jobs and work teams



### **Solution - Create Knowledge Maps**

#### **Stages of the Project**

- Develop a structure of knowledge competency types and levels
- Defining the knowledge required for particular jobs
- Rating the performance of individual employees in particular jobs by knowledge competencies
- Implementing the knowledge competencies in an on-line system
- Linking the knowledge model to training programs
- **Competencies** - Utilized a four-type knowledge structure to evaluate employee competencies:
  - Foundation Knowledge: entry level competencies
  - Unique Knowledge: advanced skills that apply to a particular job type
  - Global Knowledge: requirement for all employees within a particular function or organization
  - Universal Knowledge: required for all employees
- Within each of the four competency levels exist two different categories:
  - Explicit Knowledge Competencies: expertise in specific tools or methods that change frequently with the market place
  - Implicit Competencies: involve abstract thinking and reasoning skills

#### **Knowledge Map**

- Created as a result of the employee rating process and accessible on-line
- These maps can be queried and provide a manager with a list of qualified employees when building a team for a new project

#### **Link to Training**

- Knowledge types are also linked to specific course opportunities inside and outside of Organization

#### **Conclusion**

- Skill mapping lead to a more collaborative culture of decision making across the organization

## **Example C, Monsanto**

### **Issue**

Under-utilization of organizational knowledge due to quantity and diversity of information available

### **Goal**

- Allow 30,000 employees to share knowledge and information and, by making global knowledge locally available, to combine the knowledge benefits of a large company (quantity and diversity of knowledge) with the benefits of a small one (accessibility to knowledge)

### **Solution - System Description and Structure**

- Differentiate between quantitative (structured) and qualitative (relatively unstructured) content
  - Structured content is housed in a relational database with desktop access and query software
  - Unstructured content is represented in web pages and Lotus Notes to prevent amorphous “soft” knowledge from being forced into rigid structure and destroyed
- Enterprise Reference Data System: provides global definitions for key terms in order to organize intellectual material into a single system
- **Keys to Success**
  - Common definitions are not only required, they are necessary common ground for communication across a company
  - Only the most essential shared terms should be standardized. The goal is to harmonize organizational knowledge, not homogenize it

### **Creating a Culture that Encourages Knowledge Transfer**



- Delegating responsibility, tolerating creative mistakes, and respecting individual talents at all levels of
- the firm have been part of the company's culture from the beginning
- Researchers at all levels are expected to spend 15% of their work time on personal research interests
  - All researchers are eligible to apply for grants to support their research and encouraged to involve other employees in their projects
  - Regularly scheduled meetings and fairs give researchers time and space to meet and exchange ideas
- An on-line database of technology expertise is available throughout the company

**Conclusions** - Firm has fostered a belief that technical knowledge belongs to the company, not the individual or group who developed it

- Making knowledge widely available and giving researchers time to absorb it has led to new products
- Decreases in the time it takes to move from idea to product



## **Example D, Andersen Consulting**

### **Issue**

- Ongoing challenge to maintain cutting edge knowledge transfer in a service organization who's core assets were it employees' skill sets

### **Goals**

- Create synergy among more than 65,000 professionals working globally in a number of interrelated disciplines to address client needs in a variety of industries
- Position Lotus Notes based Knowledge Management tools, controlled by the CIO, as the centralized tool for organizational learning
- Provide individual training for employees using both instructor-led and technology based training programs to offer options to meet the needs of employees

### **Solution**

- Multiple courses make use of performance support systems (linked to the Knowledge Management tools) to assist in problem solving during learning activities
- Course participants are encouraged to make frequent use of the system during all training activities re-enforcing it's use while still in a learning environment
- System supports training by providing course announcements, registration, and, in the case of many technology-based courses, the actual delivery of training
- Courses allow for both the *dissemination* of knowledge and skills around specific topics and the *focused gathering* of new knowledge capital around these topics
  - New knowledge capital in the form of presentations and deliverables that have been generated by the courser participants is directly fed into the relevant libraries for inclusion in the Knowledge Management system

### **Conclusion**

- Knowledge Management system serves as the main vehicle to gather and make accessible new organizational learning; through discussion forums, libraries, and formal methods creation, which gets fed into course development; as well as the creation of new market offerings and other business initiatives
- The combination of training and Knowledge Management system allows both individual and organizational learning to reinforce each other and to gain maximum leverage from the sizable investment in each
- Integrated and coordinated support is provided at each stage of the learn, perform, and contribution cycle

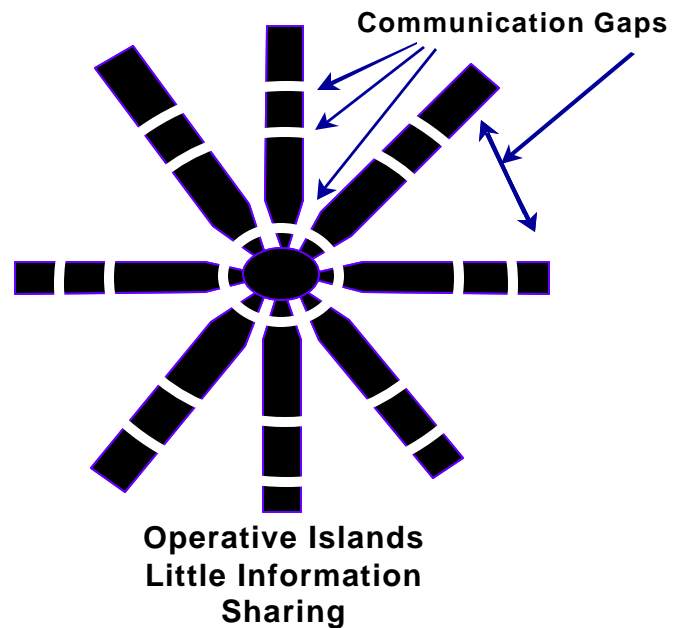
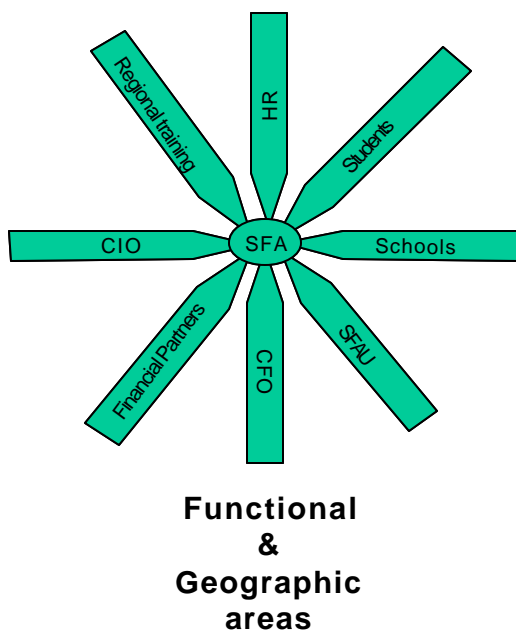


## Appendix B – Barriers to Knowledge Sharing and the Evolution of Communities of Practice

The graphic below shows some of the functional silos that exist in SFA. Without a proactive knowledge management and a communication program there is inherently little knowledge sharing across these areas.

### Knowledge sharing and building “Communities of Practice”

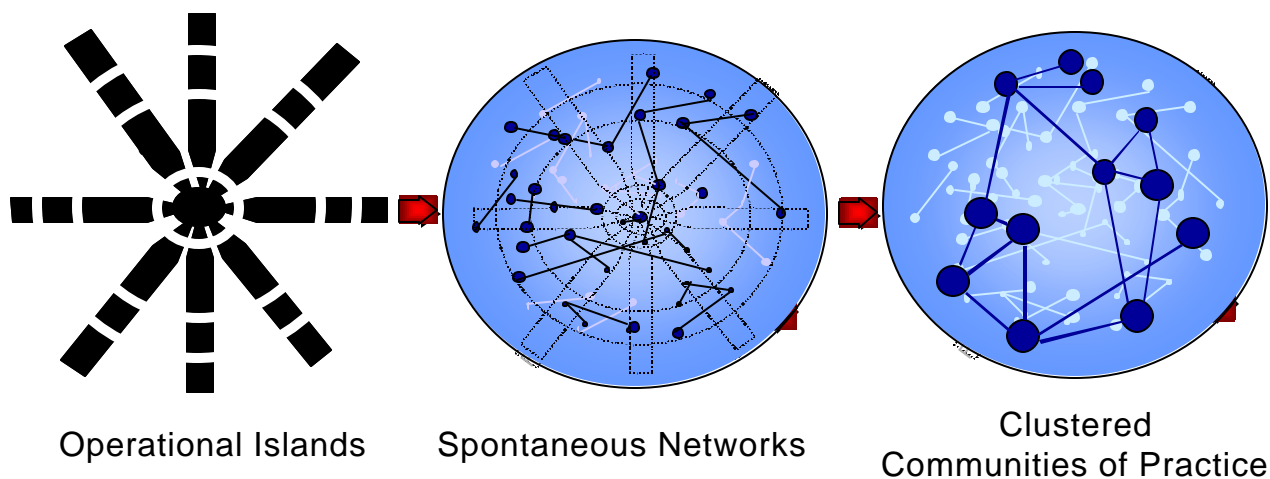
#### Knowledge Sharing Mirrors Organization Barriers





One effective knowledge management process which can bridge these barriers is the growth of Communities of Practice. The migration towards knowledge sharing can occur with an open exchange of information and by creating clustered Communities of Practice. This evolution is marked with the growth of multiple informal networks across functional areas and eventually can lead to the highly efficient communities of practice. These communities of practice allow the various entities within SFA to transfer information across and within the channels and organizational structure.

## **Evolution to Communities of Practice**



The efficiencies inherent in communities of practice can be found in the definition of such groups.

**Communities of Practice - Working Definition**

- ...aligns an organization to perform
- ...is a group with a common orientation
- ...driven by needs that help “self actualize”
- ...spans multiple boundaries
- ...enables collaboration and rapid learning



## **Appendix C – Knowledge Management Strategies**

### **Low Cost consistency Strategies**

#### ***Knowledge Exploiting***

##### Organization Structure

- Basic structure based on process knowledge
- Strong supervision system

##### HR Practices

- Reward system (including access to defined process guides, use of performance support tools, etc.)
- Training requirements for promotions, mandatory curricula
- Motivation policies (e.g. communication of increased customer satisfaction)

##### Systems and Tools

- Repositories for processes & sample outcomes
- Individual access communication tools
- Direct Performance Support Tools (strong guidelines)

##### Work Processes

- Defined and optimized processes
- Incorporation of knowledge processes (hierarchical)

### **Organizational Flexibility Strategies**

#### ***Performer Orientation-Reducing Dependency***

##### ***Knowledge Enhancement***

##### Organization Structure

- Structure facilitating apprenticeship
- Flexible supervision system

##### HR Practices

- Reward system (including knowledge contribution, participation in forums,...)
- Specific recruiting politics (star-performers)
- Specific training programs to decrease experience curves (GBS, simulation) and to improve expert knowledge (seminars, forums)
- Measures against attrition

##### Systems and Tools

- Forums, Expert Index, access to external knowledge
- Strong communication tools, to facilitate expert access (video conference, electronic mail, chats)
- Analysis tools (e.g. expert systems)

##### Work Processes

- Defined and optimized processes
- Incorporation of knowledge processes



## **Cross Functional Strategies**

### **Process Orientation-Orchestrating Across Functions**

#### **Knowledge Enhancement**

##### Organization Structure

- Structure facilitating teamwork (across functions) *SFA occasionally utilizes cross functional teaming*
- Flexible supervision system (by project or teams) *SFA is currently a functionally focused organization*

##### HR Practices

- Reward system (standard quality, knowledge contribution, use of process guides, use of performance support tools, teamwork competencies, team results, etc)
- Specific training programs to create a common frame, language

##### Systems and Tools

- Process, methodology repositories
- Strong communication tools, with specific team forums (video conference, electronic mail, chats) *Although SFA may use the communication tools listed above, not all are currently available for use*

##### Work Processes

- Defined and optimized processes (including team decision-making processes)
- Incorporation of knowledge processes

## **Teaming Strategies**

### **Knowledge Creation**

##### Organization Structure

- Create a Network structure facilitating team work (across functions)
- Flexible supervision system (by project or teams)
- Enhancement of informal structures (e.g. community) *SFA is organized by functionality not communities*

##### HR Practices

- Reward system (knowledge contribution, participation in forums)
- Specific training facilitating new competencies (external training, seminars) and team work.
- Organization of discussions, meetings, forums

##### Systems and Tools

- Access to external knowledge
- Strong communication tools, with specific team (discussions, video conference, electronic mail, chats, etc) *Although SFA may use the communication tools listed above, not all are currently available for use*
- Analysis tools (e.g. expert systems)

##### Work Processes

- Adapt HR processes to Knowledge Management

##### Incorporation of knowledge processes





## Appendix D – Knowledge Management Technology Options

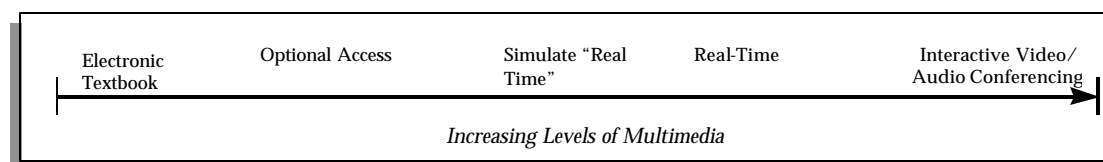
### Intranet vs. Internet

Intranet-based training is one type of “web-based training” (WBT) through an organization’s network. Users can access Intranet -based training using a “web browser”. This access enables the databases to be accessed from anywhere through the Internet.

The ways in which storage can be conducted using the Intranet can be viewed along a “continuum”. There are five major Intranet-based alternatives along this continuum:

- 1) Electronic Textbook
- 2) Optional Access
- 3) “Chunking”-style Delivery
- 4) “Real-Time” Delivery
- 5) “Interactive Video/Audio Conferencing”

#### Continuum of Intranet-based Alternatives



Each Intranet-based alternative discusses views at a progressively higher level of multimedia. Deciding which option is suitable to SFA’s purposes is dependent on the SFA’s technological limitations and business need. Descriptions, advantages and disadvantages of each option are provided below.

### Electronic Textbook

#### Description

“Static” Delivery uses the Intranet as a delivery channel for an electronic textbook. Material readings are made available that use a simple linear text design with minimal pictures and graphics used to aid the reader in understanding the concepts explained. Interactivity with an instructor and fellow participants is limited to a newsgroup where students can discuss any areas of the course material on which they would like clarification. Because the discussion takes place in virtual time participants can review materials at any time. Since the information is designed in such a simple fashion, development costs are low and the speed that the user can view the materials is fast.

### Optional Access

#### Description

“Static-Interactive” training goes one step past “Static” Delivery, allowing users some choice in what they want to read and when. Simple pictures and graphics can also be made interactive. For example, if the desired material was to be on how to use a new software package, screens can be copied and dialog boxes can be made to seem interactive. Multimedia features are static in that for ease of delivery the screen is not constantly changing. In some situations (e.g., screen prints) pictures should be limited to 16 colors in order to ensure they load as quickly as possible. A 16 colour palette will not be appropriate in all situations however and loading speed will not likely be too much slower in these



situations. Features such as a electronic discussion groups (newsgroups and “chat groups”) or an electronic questionnaires can be used for additional interactivity.

### **Simulate “Real Time”**

#### **Description**

“Chunking”-Style Delivery allows the Intranet to simulate “real-time” Computer-Based Training ( CBT) capabilities. The “Chunking”-Style alternative attempts to address the Intranet’s bandwidth limitations by sending many small “chunks” of information over the Intranet on an “as-needed” basis. By delivering the information in this fashion, Web-Based Training (WBT) can simulate a CBT since the information will appear over the Intranet as the user selects the various functions they want to use. Each course will need to be broken down into a lot of chunks (i.e., over 1000) to ensure the course pieces are small enough to quickly deliver over the Intranet.

This Intranet-based alternative can be very demanding on the designer resulting on high start-up costs. Because the material is broken down into so many small chunks it allows the designer (but also presents a challenge to the designer) to incorporate “mind-mapping” in their designs, incorporating every possible way a participant might approach the material. This design feature guarantees that the participant will be able to obtain material in the best possible method for them . While the initial cost may be high, new editions are relatively cheap to create in that only a few sections of the material need to be changed while the bulk of the material can remain unchanged.

### **“Real-Time”**

#### **Description**

“Real-Time” Delivery represents the closest WBT delivery alternative to a CBT. Two types of software exist that allow the designer to create real-time WBTs. Software exists that converts existing CBTs into WBTs by “stuffing” them and then expanding the information back out at the end user’s computer. The second alternative is a software package that allows the designer to create a multimedia course in the same way that they would design a CBT. Because multimedia presentations “stuff” so much information through the lines, the interaction time can be too slow.

### **“Interactive Video/Audio Conferencing”**

#### **Description**

“Interactive Video/Audio Conferencing” goes beyond the traditional multimedia CBT and starts combining video and audio conferencing features with the benefits of interactive hyperlinks. Participants are able to listen to a lecture and can immediately use their computer to cross-reference terms or ideas to which the content refers. These courses would require that everyone “virtually” attends at the time, but offers the advantage of allowing large numbers of people access to the best subject matter experts in that particular field. Universities worldwide are leading the research in this area of course delivery, and a number of variations exist where video or audio conferencing is made over an Intranet. Since this solution is the most high-tech, it is also the most demanding technologically speaking.

A number of factors are important to consider when deciding whether or not to use the Intranet to deliver materials. Some such factors include:

- what the objective needs to be (Information Availability, Knowledge Acquisition, or Skills Building)
- whether the ontent is better designed as self versus group participation
- hardware and software required (and compatibility issues)
- cost



The Internet and the Intranet can fulfill three categories of learning objectives: Information Availability, Knowledge Acquisition, and Skills Building.

### **How long does it take to develop Intranet-based materials?**

There are a number of factors that contribute to the development time of Intranet-based materials. The following list includes some of these considerations but should not be interpreted as an exhaustive list:

- time to learn development tools
- individuals may need time to become familiar with the software being used to develop in the Intranet-based materials
- number of different populations receiving the training
- different audiences will require different materials and increase the size of the Intranet-based program
- number of hours of associated to review the material
- more hours of material requires more development time
- type of Intranet-based materials
- different types of Intranet-based materials will require varying development times (e.g. static delivery versus interactive video)
- amount of interaction
- the greater the interaction required in the design increases the development time of the Intranet-based training
- number of people involved in the development of the Intranet-based materials



## **Skills needed to develop/deliver/support Intranet/Internet databases**

The skills that SFA will need to develop/deliver/support Intranet/Internet databases will depend on the software and hardware used to run the Intranet/Internet and develop the package.

### **Development skills**

- HTML programming
- Familiarity with Graphical User Interfaces
- Internet technology (bandwidth limitations)
- Browser packages (Netscape Navigator and Microsoft Internet Explorer)
- Knowledge of databases
- -creation of database
- -connectivity between HTML and databases or software and databases
- Knowledge of software used to develop training
- Graphic creation
- -design of graphics
- -how to best format graphics through the Intranet/Internet
- Web server design (HTTP, Unix, and CGI)

### **Delivery skills**

Users need to know how to use URLs so they can locate and download the training package

### **Support skills**

- Database administration knowledge
- Information management
- -the need for information management skills would depend on whether SFA is using the databases as a delivery vehicle, learning vehicles, or both
- Help desk personnel familiar with the training package and the Intranet/Internet are needed to help learners troubleshoot when they run into problems
- Maintainers who are familiar with the software that was used to develop the training and are able to implement necessary revisions

## **Ease of maintaining training material on the Intranet/Internet**

Intranet-based materials make distribution easy. One central source of material exists which is accessed by all participants. Whenever a revision or change to the material is required, one source is updated. Hard copies, diskettes or CD-ROM's do not have to be produced, copied, and distributed.

Like any organizational material; however, content does need to be revised and updated periodically. With Intranet-based materials, this means the developer must add or revise code, revise or create new links, etc. Therefore, the type of maintenance is different than that for more traditional means of training. This will also include management of server and line capacity, user databases and access requirements, and other technology issues.



## SFA Straw Model Operating Guidelines

Platform	Tool	Pros	Cons	Description
Intranet		<ul style="list-style-type: none"> <li>*Can be integrated with other tools</li> <li>*Multiple security</li> <li>*Capability can be built on current email system</li> </ul>	<ul style="list-style-type: none"> <li>*Limited by provided organizational and access structures</li> </ul>	<ul style="list-style-type: none"> <li>*Internal communication</li> <li>*Distributing information</li> <li>*Facilitating group collaboration</li> <li>*Store key documents</li> <li>*Reports examples of best practice</li> </ul>
	Groupware	<ul style="list-style-type: none"> <li>*Tailorable to organization needs</li> </ul>	<ul style="list-style-type: none"> <li>*Customization may require added costs</li> </ul>	<ul style="list-style-type: none"> <li>*Groupware software supports the collaborative activities of workgroups</li> </ul>
	Lotus Notes platform	<ul style="list-style-type: none"> <li>*Comprehensive out of box solution</li> <li>*Multiple dimensions of security</li> <li>*Inexpensive and flexible</li> <li>*Offline enabled</li> <li>*Lotus "Domino" Web server allows web distribution</li> <li>*Can be integrated with other tools</li> </ul>	<ul style="list-style-type: none"> <li>*Activity stored in local replicas is not reported to the server</li> </ul>	<ul style="list-style-type: none"> <li>*Warehousing of end-user applications, knowledge databases, KM Tools &amp; Developer Guides, and search functionality</li> <li>*Allows coordination of work with built-in calendars</li> <li>*Provides for scheduling, email, web navigational tools, messaging and information sharing functions</li> </ul>
	Knowledgeger 3.0 from Knowledge Associates	<ul style="list-style-type: none"> <li>*Fully scaleable</li> <li>*Holistic Enterprise Wide KM Solution</li> <li>*Leverages the power of Lotus Enterprise Connectors of Lotus Domino to connect to existing enterprise systems</li> <li>*Needs nothing more than a standard Java-enabled browser to use and administer the system</li> </ul>	<ul style="list-style-type: none"> <li>*Customization may require added cost</li> </ul>	<ul style="list-style-type: none"> <li>*Fully scaleable intranet-based knowledge management software system</li> </ul>
Internet	Web platform	<ul style="list-style-type: none"> <li>*Standard uniform security</li> <li>*Bundled web-based KM systems available commercially to avoid development costs</li> </ul>	<ul style="list-style-type: none"> <li>*Offline work is difficult</li> <li>*Requires development of metaknowledge</li> <li>*High development costs</li> <li>*Requires relational database development</li> <li>*Requires Hypertext Markup Language (HTML) publishing tool</li> <li>*Requires development of text search and retrieval engines</li> </ul>	<ul style="list-style-type: none"> <li>*External communication</li> <li>*Potentially available to outside sources</li> <li>*Extensive information retrieval</li> <li>*Information routing and delivering of outside information available</li> </ul>
	Knowledge Depot by Sequent Computers	<ul style="list-style-type: none"> <li>*Out of box web-based system</li> <li>*Lower initial cost for development</li> </ul>	<ul style="list-style-type: none"> <li>*Customization may require added costs</li> </ul>	<ul style="list-style-type: none"> <li>*Web based Knowledge Management program</li> </ul>
	GrapeVine	<ul style="list-style-type: none"> <li>*Classifies new documents against a classification tree</li> <li>*Allows creation of an "interest profile" (a list of topics from the category tree or created by the user) enabling users to do their job successfully</li> <li>*Rankings of each document can be attached</li> <li>*Thoughts and opinions can be added for usefulness</li> <li>*Browsers can be used for information through the category tree on an ad hoc basis</li> </ul>	<ul style="list-style-type: none"> <li>*Customization to do internet wide searches may require added cost</li> </ul>	<ul style="list-style-type: none"> <li>*A user can specify where to look for information or knowledge</li> <li>*The software scans the web sites, file-servers, databases, both local and global, to find a match</li> <li>*Knowledge can be retrieved, sent to your e-mail account and categorized in "interest profiles" which are specified by the user</li> </ul>



## Matrix Continued:

Platform	Tool	Pros	Cons	Description
	Hoover Systems	<ul style="list-style-type: none"> <li>*Tool can be used to access intranet material</li> <li>*Can be used in unison with other tools like Notes</li> </ul>	<ul style="list-style-type: none"> <li>*Works in unison with other tools and not directly with other tools</li> </ul>	<ul style="list-style-type: none"> <li>*Automated search program</li> <li>*Searches through external databases retrieving knowledge that has been identified as relevant</li> </ul>
	mySAP.com Knowledge Management	<ul style="list-style-type: none"> <li>*Can be combined with other components of mySAP.com Business Intelligence</li> <li>*Allows users to check-in information via the browser interface</li> <li>*Provides pre-configured models for various types of documents and information structures to guarantee consistency among all types of information</li> </ul>	<ul style="list-style-type: none"> <li>*Additional components may require additional costs</li> </ul>	<ul style="list-style-type: none"> <li>* Web-enabled information-gathering environment</li> <li>*Creates a network of information resources for transferring knowledge and enhancing employee performance.</li> <li>*Manages all types of unstructured information</li> <li>*Supports access to the full range of role-specific and general information</li> </ul>
	Portera - Knowledge Manager from Compuserve	<ul style="list-style-type: none"> <li>*Organizes, indexes and searches documents and web-based content based on customized taxonomy</li> <li>*Able to perform sophisticated full-text or attribute-based searches of knowledge libraries</li> </ul>	<ul style="list-style-type: none"> <li>*Does not provide pre-configured models for document types</li> </ul>	<ul style="list-style-type: none"> <li>*Provides a web-hosting infrastructure for information sharing</li> <li>*Information management system to capture, search, and reuse information</li> </ul>
	eTeamWorks	<ul style="list-style-type: none"> <li>*Customizable website</li> <li>*Individual views can be created</li> <li>*Scalable platform</li> <li>*Can be integrated with other tools (accessible through a Portal)</li> </ul>	<ul style="list-style-type: none"> <li>*Additional components may require additional cost</li> </ul>	<ul style="list-style-type: none"> <li>*A customizable website for teams</li> <li>*Provides cross team info that can be tailored to desired information and links</li> <li>*Seven core areas (library, news &amp; notices, discussion, calendar, issues management, status reporting, community information)</li> </ul>
Internet software				
	Chakra Knowledge System from company called HuskyLabs	<ul style="list-style-type: none"> <li>*Can be used as an application in an extranet deployment</li> <li>*Allows participation in discussion groups, access to libraries of work product, conducting private conferences with clients and colleagues, and communicating with peers</li> <li>*Provides training on using the Internet for research</li> </ul>	<ul style="list-style-type: none"> <li>*Customization may require added cost</li> </ul>	<ul style="list-style-type: none"> <li>*All-java based knowledge management system</li> <li>*A complete software system for providing privileged, perpetual access to a wide range of information stores located throughout corporate networks and the Internet</li> </ul>
	Hummingbird Fulcrum Knowledge Server	<ul style="list-style-type: none"> <li>*Designed for Microsoft Back Office</li> <li>*Expandable to a full web portal</li> <li>*Views documents in native format without opening applications</li> <li>*Uses existing platform security</li> <li>*Allows web browsing</li> </ul>	<ul style="list-style-type: none"> <li>*Only permits training throughout the internet if expanded to the full web portal</li> </ul>	<ul style="list-style-type: none"> <li>*Microsoft based Knowledge Server that can be customized to an organization's knowledge management needs</li> </ul>



## Matrix Continued:

Platform	Tool	Pros	Cons	Description
Internet/Intranet				
	IBM- Content Manager On Demand	<ul style="list-style-type: none"> <li>*Inter/Intranet access to stored documents</li> <li>*CD Rom distribution of data</li> <li>*Expandable automatic indexing</li> <li>*User defined security</li> <li>*GUI system administration</li> <li>*Automatic data compression</li> <li>*Off the shelf availability</li> </ul>	<ul style="list-style-type: none"> <li>*Operates only with individual user licenses</li> </ul>	*IBM based Content Manager that stores Knowledge Management materials
	Windows Wincite Systems	<ul style="list-style-type: none"> <li>*Structures intelligence using a customized application</li> <li>*Maps knowledge to markets, products, processes and functions</li> <li>*Links supporting details from other applications</li> <li>*Allows the addition of new subjects to evolve and expand the scope of the system</li> <li>*Produces benchmark and profile reports from information stored in the database</li> </ul>	<ul style="list-style-type: none"> <li>*Must be distributed throughout the organization via the World Wide Web, corporate intranets, Lotus Notes or e-mail</li> </ul>	*Flexible, Windows-based, multidimensional database application
	IBM's KnowledgeX	<ul style="list-style-type: none"> <li>*Provides processes for capturing expert knowledge</li> <li>*Enables development of a knowledge base of people, documents, web sites, and contacts</li> <li>*User-friendly, client- and Web browser-based user interfaces</li> <li>*Organizes the content of diverse sources</li> <li>*Delivers relevant information tailored to a user's needs</li> <li>*Enables organization-wide sharing and dissemination of knowledge</li> <li>*Powerful knowledge mapping and navigation capabilities</li> </ul>	<ul style="list-style-type: none"> <li>*Limited by provided organizational and access structures unless web enabled</li> </ul>	*IBM based Content Manager that stores Knowledge Management materials